



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant(s): Jo et al. Examiner: Oh, Simon
Serial No.: 10/069,561 Group Art No. 1615
Filed: October 22, 2001 Docket: 763-29
For: HEMOSTATIC SOLUBLE CELLULOSE... Dated: January 6, 2003

Assistant Commissioner for Patents
Washington, D.C. 20231

AMENDMENT

Sir:

Responsive to the Office Action mailed September 6, 2002 by the Patent and Trademark Office in the above-identified application, please enter the following amendment:

IN THE CLAIMS:

Cancel Claims 1-33 without prejudice and substitute therefor the following

Claims 34-66 :

34. A soluble trauma-healing hemostatic cellulose fiber, wherein at least one coagulation protein is imparted to at least one natural or regenerated cellulose fiber that has been carboxymethylated to an extent such that degree of substitution of the glucose units constituting the cellulose molecule is 0.5- less than 1.0 %.

CERTIFICATE OF MAILING 37 C.F.R. § 1.8

I hereby certify that this correspondence is being deposited with the United States Postal Service as First Class Mail in an envelope, addressed to the Assistant Commissioner for Patents, Washington, D.C. 20231.

Dated: January 6, 2003

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35. The fiber of claim 34, wherein the coagulation protein is selected from the group consisting of fibrinogen, thrombin, coagulation factor XIII, and mixtures thereof.

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36. The fiber of claim 35, wherein the coagulation protein is imparted by surface application to the carboxymethylated natural or regenerated cellulose fiber.

37. The fiber of claim 36, wherein the coagulation protein is applied by spraying a solution thereof onto the fiber.

38. The fiber of claim 36, wherein a mixture of all three proteins is imparted in a single application.

39. The fiber of claim 36, wherein said three proteins are consecutively imparted in individual applications.

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40. The fiber of claim 35, wherein said protein is imparted by chemical bonding to the carboxymethylated natural or regenerated cellulose fiber.

41. The fiber of claim 40, wherein said fiber is treated with carbodiimide prior to the reaction with the protein.

42. The fiber of claim 40, wherein a mixture of all three proteins is chemically bonded in a single pass.

43. The fiber of claim 40, wherein said three proteins are chemically bonded in consecutive passes.

44. The fiber of claim 34, wherein the fiber is pulverized after the protein is imparted.

45. The fiber of claim 39, wherein a plurality of said thus-treated fibers are individually pulverized and then mixed.

46. The fiber of claim 45, wherein the proteins are applied by spraying solutions thereof.

47. The fiber of claim 43, wherein a plurality of said thus-treated fibers are individually pulverized and then mixed.

48. The fiber of claim 47, wherein the fibers are treated with carbodiimide reagent prior to the chemical reaction.

49. A drawn thread array having a number of single threads of the fiber according to claim 34 loosely twisted together.

50. A woven fabric comprising a plain or twill woven array of claim 49.

BI 51. The fabric of claim 50, wherein the arrays of the drawn fibers have a thickness of 20-100 Denier.

52. Gauze-like material obtained by shoddy wool treatment of fibers of claim 34.

SUB 53. A method of producing a soluble trauma-healing hemostatic cellulose fiber, comprising the steps of:

treating natural or regenerated cellulose fiber with an aqueous sodium hydroxide solution,

reacting the thus-treated fibers with a monochloro acetic acid solution for carboxymethylation to an extent such that degree of substitution of hydroxyl groups of glucose units constituting the cellulose molecule is 0.5 to less than 1.0 %,

subsequently refining the fibers and then imparting three coagulation proteins which are fibrinogen, thrombin and coagulation factor XIII by spraying, and then drying.

54. The method of claim 53, wherein the proteins are imparted by spraying a solution of all three proteins in a single pass.

55. The method of claim 53, wherein the proteins are imparted by spraying respective solutions of each said protein in consecutive passes.

56. A method of producing a soluble trauma-healing hemostatic cellulose fiber, comprising the steps of:

treating natural or regenerated cellulose fiber with an aqueous sodium hydroxide solution,

reacting the thus-treated fibers with a monochloro acetic acid solution for carboxymethylation to an extent such that degree of substitution of hydroxyl groups of glucose units constituting the cellulose molecule is 0.5 to less than 1.0 %,

subsequently refining the fibers and then imparting three coagulation proteins which are fibrinogen, thrombin and coagulation factor XIII by chemical bonding, and then drying.

57. The method of claim 56, wherein the proteins are imparted with a single solution of all three proteins in a single pass.

58. The method of claim 56, wherein the proteins are imparted with respective solutions of each said protein in consecutive passes.

59. The method of claim 53, comprising the additional step of pulverizing the fiber after drying.

60. The method of claim 55, comprising the additional step of after drying, pulverizing and then mixing thus-produced fibers.